

Title/Subject: STANDARD APPLICATION PROCEDURE FOR THE APPROVAL OF ELECTRIC CABLES, SIGNALING CABLES AND SPLICE KITS		
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Signature/Initial: Steven J. Luzik		

Standard Application Procedures for the Approval of Electric Cables, Signaling Cables, and Splice Kits - including a cable jacket repair option

1.0 **Purpose**

This document establishes a Mine Safety and Health Administration (MSHA) Standard Application Procedure (SAP) for the Approval of Electric Cables, Signaling Cables, Splice Kits (including a Cable Jacket Repair option) under 30 CFR, Part 7, Subparts A & K. It's use is voluntary.

2.0 **Scope**

These procedures apply to all applications for Approval of Electric Cables, Signaling Cables, and Splice Kits under 30 CFR, Part 7, Subparts A & K, and is voluntary.

3.0 **Reference**

- 3.1 Approval and Certification Center (A&CC) Cancellation Policy (APOL 1009).
- 3.2 Code of Federal Regulations (30CFR) Part 7, Subparts A & K.

4.0 **Definitions**

- 4.1 Cable Jacket Repair - A method using the materials of a MSHA approved splice kit to repair the outer jacket of a cable. This is an additional use (option) to a MSHA approved Splice Kit, when requested by the approval holder.
- 4.2 Electric Cable - An assembly of one or more conductors contained within a common integral jacket having at least two conductors #14AWG or larger and having a voltage rating of over 50 volts
- 4.3 Preauthorization - An agreement in the application that confirms and agrees to MSHA's general cost estimate to evaluate the application.

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This eliminates the need for a fee letter to be sent to the applicant, and the applicant's response. See Section 5.6.1.

- 4.4 Signal Cable - 1) an assembly of one or more conductors contained within a common integral jacket whose conductors are smaller than #14AWG or have a voltage rating under 50 volts.. 2) Fiber optic cable...3) Coaxial cable rated under 50 volts
- 4.5 Splice Kit - A group of materials and an instruction sheet that clearly lists the voltages of all possible kit configurations. No individual part of the splice kit may be marked with an MSHA approval number that may suggest that independent use of the part is approved or sanctioned by MSHA; except for the outer wrap material, which if approved as a cable jacket repair method, must list the MSHA approval number.

5.0 **Application Procedure**

It is recommended that applicants contact the Approval and Certification Center to discuss approval and testing requirements prior to submitting an application.

- 5.1 An application requesting an approval or extension of approval should be sent to the following address:

Chief
Approval and Certification Center
Mine Safety and Health Administration
RR #1 Box 251, Industrial Park Road
Triadelphia, West Virginia 26059
- 5.2 Applicants must conduct their own flame test or have it conducted by a third party. MSHA does not conduct approval testing of these cables; although MSHA reserves the right to view or witness the flame tests (see Section 5.6.2). A list of participating Part 7 testing laboratories is attached in Appendix #1. MSHA does not "approve" or endorse these laboratories, but lists them for the convenience of the applicant.
- 5.3 Electric and Signal Cable Applications

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Applicants should refer to the Electric and Signal Cable Application Form (Appendix #2) which illustrates the type of information required. Applications must contain the following information.

- 5.3.1 A 6 numeric digit code number (or less) assigned by the applicant (Application Code).
- 5.3.2 Cable type, construction (round, flat etc.), number and size (gage) of each conductor and its current carrying capacity (ampacity).
- 5.3.3 The design standard used in the construction of the cable.
- 5.3.4 An engineering drawing of the cable(s) to show all details, such as conductor insulation, jacket thickness, overall dimensions and other construction features.
- 5.3.5 A list of each material (by type, compound #, supplier and suppliers stock # or other designation) used in construction of the finished assembly (e.g. outer jacket, conductor insulation and fillers).
- 5.3.6 Applicable Certification Statements as described in Appendix #4.
- 5.3.7 If required, the place and date for flame testing and details on the specific samples that will be tested. Upon completion of testing, a copy of the laboratory's flame test report must be provided to MSHA. See Appendix #5.
- 5.3.8 The name, address, and telephone number of the applicant's representative responsible for answering any questions regarding the application.

5.4 **Splice Kit Applications - Including a Cable Jacket Repair option**

Applicants should refer to the Splice Kit Application Form (Appendix #3) which illustrates the type of information required. A cable jacket

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repair method may be listed as an option for the Splice Kit, and will only be approved as part of a Splice Kit. Applications must contain the following information:

- 5.4.1 A 6 numeric digit code number (or less) assigned by the applicant (Application Code).
- 5.4.2 Splice Kit trade name, cable designation (style, code number, voltage rating(s))
- 5.4.3 The design standard used, voltage rating, type of kit (shielded, non-shielded) and the complete assembly dimensions for all components and for each cable the splice kit is designed to repair.
- 5.4.4 An engineering drawing of the splice(s) to show all details, such as conductor insulation, jacket thickness, overall dimensions and other features.
- 5.4.5 An instruction sheet listing the **voltage rating(s)** of the completed splice kit detailing the assembly of the splice.
- 5.4.6 A materials list (by type, compound #, supplier and suppliers stock # or other designation) for each component used in the splice kit.
- 5.4.7 Applicable Certification Statements as described in Appendix #4.
- 5.4.8 The place and date for flame testing and details on the specific samples that will be tested. Upon completion of testing, a copy of the laboratory's flame test report must be provided to MSHA. See Appendix #5
- 5.4.9 The name, address, and telephone number of the applicant's representative responsible for answering any questions regarding the application.

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5.4.10 If a cable jacket repair method is listed as an option, the instructions for this method must be included. These instructions must be a separate procedure to clearly distinguish them from the Splice Kit instructions.

5.5 Extensions of Approval - Electric Cables, Signaling Cables and Splice Kits

5.5.1 Any change in the approved cable from the documentation on file at MSHA that affects the technical requirements (described in Part 7.404) should be submitted to MSHA for approval prior to implementing the change. Each application for an extension of approval should include the following:

5.5.1.1 Applications should be identified with a 6 numeric digit code number (or less) assigned by the applicant.

5.5.1.2 The MSHA-assigned approval number for the cable for which the extension is being requested;

5.5.1.2 A description of the proposed change to the previously approved cable;

5.5.1.3 Drawings and specifications which show the change in detail;

5.5.1.4 A statement as to whether, in the applicant's opinion, the change requires cable testing. If testing is not proposed, the applicant shall explain the reasons for not testing;

5.5.1.5 The place and date for flame testing and details on the specific samples that will be tested. Upon completion of testing, a copy of the laboratory's flame test report must be provided to MSHA.

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5.5.1.6 The name, address, and telephone number of the applicant's representative responsible for answering any questions regarding the application.

5.5.1.7 The forms shown as Appendix #2 or #3, as appropriate, may be used.

5.6 Application Processing

5.6.1 Upon receipt of a complete application, an estimate for the administrative cost of processing the application (cap letter), that includes the cost for the *time* spent to travel and witness the cable testing, will be sent to the applicant. The cost of any *travel and lodging* involved with witnessing the tests is a separate cost, and will also be charged to the applicant.

The applicant may preauthorize the estimate in order to eliminate the "cap" letter. Check with MSHA personnel for the present amount.

5.6.2 Upon receipt of the company agreement to the cap estimate (or *preauthorization*), MSHA will schedule the trip for the witnessing of the flame tests at the earliest possible convenience of all parties. MSHA's policy is to witness the testing of all first time Part 7 applicants. MSHA will also witness testing at "new" first time laboratories, or may witness tests at laboratories who in the past, have demonstrated difficulties in conducting the tests according to the testing standards. MSHA reserves the right to witness any testing.

5.6.3 The applicant will be notified of the cables required for approval testing. When a range of cable sizes is applied for, it is not necessary to test every cable. MSHA's policy is to require testing of electric cables, signaling cables and splice kits with the smallest (and therefore thinnest jacket cover) and a representative larger size (gage) within the range.

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- 5.6.4 Since jacket repair methods are an option in the Splice Kit application, there are no test procedures strictly for the testing of a cable jacket repair material.
- 5.6.5 Upon successful testing of the cable(s) and receipt of laboratory test data report(s) with certifications (see Appendix #5), MSHA will prepare an approval letter for the applicant.
- 5.6.6 If a cable should fail the test, one retest will be allowed based on a written request by the applicant. The request for retest must provide the justification for such action, such as improvement in cable formulation and amendment of original application. Based upon the justification and at MSHA's discretion, the retest may consist of both sizes that were originally tested; otherwise, only the specific size that passed the test will be issued an approval. MSHA may waive viewing of retests.
- 5.6.7 For electric cables, signaling cables and splice kits used in coal mines in Pennsylvania, the State of Pennsylvania, Department of Environmental Resources, requires that the letter "P" be permanently marked on all cables and splice kits approved by MSHA. MSHA sends a copy of each approval to the Department of Environmental Resources. They, in turn, will send the applicant a notification of this requirement. Therefore, each approved cable or splice kit must display the MSHA marking designation as well as the "P" designation in order to be recognized in Pennsylvania. Pennsylvania is the only state with such a requirement.

5.7 Notification of Discrepancy

The applicant will be notified of any discrepancies that need to be corrected. Discrepancies will be resolved in accordance with the A&CC's Cancellation Policy (APOL 1009).

6.0 Responsibility

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The Materials and Explosion Testing Branch (METB) of the Approval & Certification Center (A&CC) is responsible for evaluating and processing the applications. They may be reached at 304-547-0400 for further information.

7.0 **Distribution**

Applicants, MSHA Internet Web Master users and A&CC personnel involved in processing such applications.

8.0 **Review**

This document will be reviewed at least once every three years.

9.0 **Authority**

30 CFR, Part 7, Subparts A & K.

Appendix #1

Part 7K Flame Test Laboratories for Electric Cables, Signaling Cables, and Splice kits (Not endorsed or Approved by MSHA, but listed as a convenience)

Central States Industries, Inc.
200 Neal Street
Beckley, West Virginia 25801
Telephone: 304-255-7460

Inchcape Testing Services
ETL Testing Laboratories
P.O. Box 2040
Cortland, New York 13045
Telephone: 607-753-6711

BICC
P.O. Box 188, East 8th Street
Marion, Indiana 46952

Telephone: 765-664-2321

Plymouth Rubber Company
104 Revere Street
Canton, Massachusetts 02021-2996
Telephone: 781-828-0220

Appendix #2

ELECTRIC AND SIGNALING CABLE APPLICATION FORM

Date _____

1. Company Name _____
Telephone No. (Area Code) _____
Company Representative _____
2. Application Code Number _____
3. Cable Description (Include all variations - use separate sheets if necessary)

	INDICATE N/A IF NOT APPLICABLE
1. Trade Name	
2. Type - (nomenclature) (round/flat)	
4. Voltage Rating & Ampacity	
5. Design Standard	
6 Ground Check	
7. Ground	
8. Shield	
9. Conductor	
10. Jacket Material & Spec. # (Color)	
11. Conductor Insulation & Spec. #	
12. Filler Material	
13. Any Additional Materials or Components	

Appendix #3

SPLICE KIT APPLICATION FORM

Date _____

- 1. Company Name _____
Telephone No. (Area Code) _____
Company Representative _____
- 2. Application Code Number (must be provided) _____
- 3. Cable Description (Include all variations) _____

	INDICATE N/A IF NOT APPLICABLE
1. Acceptance # or ID # of Approved Cable Supplied:	
2. Splice Kit Trade Name	
3. Outer Jacket	
4. Inner Jacket	
5 Adhesive Material	
6. Filler Material	
7. Conductor Insulation Material	
8. Connector Material	
9. All Additional Components	
10. Abrasive Cloth	
11. Solvent Pad	
12. Danger Labels	
13. Complete Instructions	
14. Design Standard	
15. Jacket Repair Option - Instructions Included	

Appendix # 4

Certification Statements

Each application (original or *extension*) of approval shall include certification statements as described in Part 7, Subpart A, Section 7.3(f).

Examples

PAR _____, Company Code # _____

- A. We (the applicant) certify that the cable meets the design portion of the technical requirements as specified in Subpart 7K, Section 7.404.
- B. We (the applicant) certify that we will perform the Quality Assurance requirements of Subpart A , Section 7.7.
- C. After completion of the required cable testing, the applicant must certify that the cable meets the performance portion of the technical requirements as specified in Subpart 7K, Section 7.404. However, in the event of an MSHA representative witnessing the cable testing, this statement is not needed as part of the application.

The certification statements must be signed by an authorized company official.

Signature of Authorized Company Official

Appendix # 5

Information Needed on Test Reports

1. Test procedure
2. Equipment used, including calibration dates
3. Dates of cable conditioning

Sample Test Form

GENERAL INFORMATION

Cable Manufacturer _____, MSHA PAR
_____ Date _____

Testing Laboratory _____, Reference # _____ Tests Conducted
By _____

Cable Trade Name _____, Size _____, Jacket
Markings _ * _____ Color _____

Voltage Rating _____, Ampacity _____, Conductor/Stranding
Info. _____

TEST PARAMETERS

Flame Height 5", Inner Cone Height 3", Conductor Temp. 400°F, Heating Current _____ X 5 =

TEST RESULTS

Test No.	Time Flame Applied (400°C)	Time Flame & Current Removed	Time Burning Ends	Burning Duration (seconds)	Length of Burn	Pass/Fail
1						
2						
3						
		30 signal 60 power (seconds)		Allowed 60 signal 240 power (max.)	Allowed Max. 6"	
						P or F

Remarks _____

Signed _____

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